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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,979	06/14/2001	Cheng-Chih Chien	CHIE3017/EM/6875	5050

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BACON & THOMAS, PLLC
625 SLATERS LANE
FOURTH FLOOR
ALEXANDRIA, VA 22314

EXAMINER	
BRITT, CYNTHIA H	

ART UNIT	PAPER NUMBER
2133	2

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/879,979	CHIEN ET AL.
	Examiner	Art Unit
	Cynthia Britt	2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 2* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 2* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because descriptive labels other than numerical are needed for figure 1. See 37 CFR 1.84(o). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: In line 20 of page 1, and line 4 of page 2, "abovesaid" should be "above said".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 2 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the operation state " in lines 8 and 9. There is insufficient antecedent basis for this limitation in the claim.

The examiner suggests using "an operation state"

Claim 1 recites the limitation "the total bits of logic '0'" in line 11. There is insufficient antecedent basis for this limitation in the claim.

The examiner suggests using "total bits of logic '0'".

Claim 1 recites the limitation "the counted result" in line 12. There is insufficient antecedent basis for this limitation in the claim.

The examiner suggests "the total bits of logic '0'".

Claim 1 recites the limitation "the interpolated inverters" in line 15. There is insufficient antecedent basis for this limitation in the claim.

It is unclear to the examiner if "the interpolated inverters" in line 15 are the same inverters previously mentioned in line 4. It is further unclear to the examiner what an interpolated inverter actually is or does, as "the interpolated inverters" is not defined in the specification (page 2 line 17, and page 4 line 17).

Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). The term "non-inverse inverter" in claim 2 is used by the claim to mean "an inverter that does not invert", while the accepted definition of inverter is, in this case, to change a "1" to a "0" or to change a "0" to a "1". The term is indefinite because the specification does not clearly define the term "non-inverse inverter", nor is it clearly described in the specification why a "non-inverse inverter" is even necessary.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by Arase et al. U.S. Patent no. 5,561,632.

As per claim 1, Arase et al. substantially teach the claimed device for prolonging the lifetime of nonvolatile memory in which a flash EEPROM, where a provision is made of an auxiliary bit portion connecting nonvolatile memories in parallel with bit lines of a memory array portion and a spare row decoder for controlling addresses of a redundant memory portion, which records the cumulative number of cycles of rewriting and erasure for each word line in the nonvolatile memories, judges from the stored cumulative number of cycles (counter) if the number of cycles of a sector has reached a limit value, and, when reaching it, replaces the word line with a redundant word line so as to prolong the life of the memory even when the cumulative number of cycles of a specific word line has reached a limit value and which stores the data in accordance with different phases when the number of the data "1" or "0" is greater than or less than

a predetermined number at the time of writing data and fetches the stored information based on the phase information at the time of reading data so as to reduce the drain disturbances (abstract). The semiconductor nonvolatile memory cells are electrically rewritable and provision is made of a circuit which writes binary information in the auxiliary memory means (buffer) in accordance with whether the stored information was written inverted at the time of writing the stored information in the semiconductor nonvolatile memory cells and which inverts the stored information in accordance with information of the auxiliary memory means when reading the stored information of the semiconductor nonvolatile memory cells. The device also use counters and state values (Column 4 lines 43-53, column 8 lines 30-48)

As per claim 2, Arase teach using inverters and storing the data based on if the data was inverted prior to storage (column 4 lines 43-53).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,930,169. Iwata et al.

This patent teaches electrically erasable and writable nonvolatile memory cells are arranged. After erasing the data in at least part of the memory cells, light-writing is done by applying, to the memory cells erased from, a bias whose pulse width is shorter or whose write voltage is lower than in an ordinary write operation. Then, a property-

degraded cell which is in a written state is detected from among the memory cells subjected to light-writing. Because the property-degraded cell can be found in this way, the lifetime of the chip can be improved by, for example, replacing the defective cell with a normal cell.

U.S. Patent No. 6,160,739 Wong

This patent teaches non-volatile memory cells in a sector of a memory array are selectively erased only when it is determined that the selected memory cells require erasing. A memory cell is selectively erased by applying two non-zero erase voltages to the cell, where the combination of the two erase voltages generates an electric field sufficient to induce Fowler-Nordheim tunneling and erase the cell. Memory cells not selected for erasing, either in the same sector or other sectors, have only one or none of the two erase voltages applied, which is insufficient to erase the unselected memory cells is a result, endurance of the non-volatile memory cells is improved because the memory cells are not subjected to repeated unnecessary erasing and programming operations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Britt whose telephone number is 703-308-2391. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cynthia Britt
Examiner
Art Unit 2133

ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100